DETAILED ACTION

It would be of great assistance to the Office if all incoming papers pertaining to a filed application carried the following items:

1. Application number (checked for accuracy, including series code and serial no.).
2. Group art unit number (copied from most recent Office communication).
3. Filing date.
4. Name of the examiner who prepared the most recent Office action.
5. Title of invention.
6. Confirmation number (See MPEP § 503).

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ali Imam (Reg. No.: 58,755) on 8/5/2010.

The application has been amended as follows:

1. An image encoding apparatus comprising:

a converter receiving an image signal, and carrying out orthogonal transformation on a block by block basis of an image frame to convert the image signal of individual block to DC components and AC components;

a predicted reference value generator receiving the image signal, and generating a predicted reference value of each image frame from DC components obtained by orthogonal transformation of only left-edge blocks of the image frame;

a differential unit obtaining values between the DC components output from said converter and the predicted reference value generated by said predicted reference value generator, wherein

said image encoding apparatus carries out quantizing and variable-length encoding of the AC components and the difference values obtained by said differential unit, carries out quantizing and variable-length encoding of the predicted reference value to be added to a header, and outputs the encoded AC components and difference values along with the encoded predicted reference value added to the header as a bit stream.

17. An image decoding apparatus comprising:

a variable-length decoder decoding difference values and AC components of individual block contained in a bit stream, and decoding a predicted reference value of each image frame generated from DC components of <u>only</u> left-edge blocks of the image frame added to a header; and

an adder obtaining the DC components by adding the difference values and the predicted reference value, which are decoded by said variable-length decoder, wherein

said image decoding apparatus outputs a decoded image signal by carrying out dequantization and inverse orthogonal transformation of the AC components and the DC components obtained by said adder.

21. An image encoding method comprising:

receiving an image signal, and carrying out orthogonal transformation, by utilizing a converter, on a block by block basis of an image flame to convert the image signal of individual block to DC components and AC components;

receiving the image signal, and generating a predicted reference value of each image frame from DC components obtained by orthogonal transformation of <u>only</u> left-edge blocks of the image frame;

obtaining difference values between the DC components and the predicted reference value;

quantizing and variable-length encoding of the AC components and the difference values;

quantizing and variable-length encoding of the predicted reference value to be added to a header; and

outputting the encoded AC components and difference values along with the encoded predicted reference value added to the header as a bit stream.

24. An image decoding method comprising:

decoding, by utilizing a variable-length decoder, difference values and AC components of individual block contained in a bit stream, and decoding a predicted reference value of each image frame generated from DC components of <u>only</u> left-edge blocks of the image frame added to a header; and

obtaining the DC components by adding the difference values and the predicted reference value, which are decoded by said variable-length decoder, wherein

outputting a decoded image signal by carrying out dequantization and inverse

orthogonal transformation of the AC components and the DC components.

2.   The following is an examiner's statement of reasons for allowance: The prior art

of record fails to anticipate or render obvious in combination the limitations found in

claims 1, 17, 21 and 24. These claims, which recite similar subject matter, require that a

predicted reference value be generated by orthogonal transformation of only the left-

edge block of the image frame. This is distinguished from the prior art as, for example,

Maeda teaches all the blocks of the frame are orthogonally transformed to obtain

predicted reference values, but fails to teach where only the left edge blocks are

transformed. Furthermore, Shen et al. (U.S. Pat. No.: 7,437,008, "Shen") teaches that

there four modes of generating predictive DCT transform blocks, those being a) No-

Pred, b) Up-Pred, c) Left-Pred, and d) Other-Pred (Col. 33, Lines 36-41). This teaching

differs from the claimed invention as the invention requires the left-edge to always be

used, where as the Shen reference determines which mode to use depending on the

data present in the image. As such, in the Shen cannot be applied, as Left-Pred is not

the only mode used.

Any comments considered necessary by applicant must be submitted no later

than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on

Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nirav G. Patel whose telephone number is (571)270-5812. The examiner can normally be reached on Monday - Friday 8 am - 5 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nirav G. Patel/
Examiner, Art Unit 2624

/John B Strege/
Primary Examiner, Art Unit 2624